

In the Claims

- 1        1. (currently amended) A monolithic microwave integrated circuit, comprising:
  - 2              an amplifier circuit having a group delay variation verses frequency characteristic;
  - 3              and
  - 4              a group delay equalizer circuit integrated with said amplifier circuit to
  - 5              compensate for said group delay variation verses frequency characteristic of said amplifier
  - 6              circuit to frequencies above 50 GHz.
  
- .1        2. (original) The circuit of Claim 1, wherein said amplifier circuit is capable of receiving  
2              an input signal having a frequency range, amplifying said input signal and producing an output  
3              signal corresponding to said amplified input signal, said group delay equalizer circuit being  
4              further capable of maintaining near constant group delay of frequencies within said frequency  
5              range of said input signal to prevent distortion of said output signal.
  
- 1        3. (original) The circuit of Claim 1, wherein said group delay equalizer circuit  
2              comprises between 3 and 20 percent of the area of said monolithic microwave integrated circuit.
  
- 1        4. (canceled)
  
- 1        *4,81* (original) The circuit of Claim 1, wherein said amplifier circuit is a distributed  
2              amplifier circuit.

1       ~~5~~<sup>4</sup> (original) The circuit of Claim ~~5~~, wherein said distributed amplifier circuit comprises  
2       one or more stages, each of said one or more stages including a common source field-effect  
3       transistor, a bipolar transistor or a cascode field-effect transistor structure.

1       ~~6~~ (original) The circuit of Claim 1, wherein said amplifier circuit is a feedback  
2       amplifier circuit.

1       ~~7~~<sup>8</sup> (original) The circuit of Claim 1, wherein said group delay equalizer circuit  
2       comprises one or more sections, each of said sections having a different group delay response.

1       ~~8~~<sup>7</sup> (original) The circuit of Claim ~~8~~, wherein at least one of said one or more sections is  
2       placed at the input of said amplifier circuit.

1       ~~9~~<sup>10</sup> (original) The circuit of Claim ~~8~~, wherein at least one of said one or more sections is  
2       placed at the output of said amplifier circuit.

1       ~~10~~<sup>11</sup> (original) The circuit of Claim ~~8~~, wherein at least one of said one or more sections is  
2       placed between one or more stages of said amplifier circuit.

1       ~~11~~<sup>12</sup> (original) The circuit of Claim ~~8~~, wherein said one or more sections are cascaded  
2       together to form a composite group delay response capable of compensating for said group delay  
3       variation versus frequency characteristic of said amplifier circuit.

1       <sup>12</sup>  
1       ~~12~~ (original) The circuit of Claim <sup>7</sup>~~8~~, wherein at least one of said one or more sections  
2       has least one microstrip line inductive over a specific frequency range and at least one capacitor  
3       to create a specific phase response over at least a portion of the frequency range of said amplifier  
4       circuit.

1       <sup>13</sup>  
1       ~~14~~ (original) The circuit of Claim <sup>12</sup>~~13~~, wherein at least one of said one or more sections  
2       is a filter selected from the group consisting of: an LC filter, a bridged LC filter, an RC filter and  
3       an RLC filter.

1       <sup>14</sup>  
1       ~~15~~ (original) The circuit of Claim <sup>12</sup>~~13~~, wherein at least one of said one or more sections  
2       is a filter with a microstrip transformer.

1       <sup>15</sup>  
1       ~~16~~ (original) The circuit of Claim 1, further comprising:  
2                  a substrate, said amplifier circuit and said group delay equalizer circuit being  
3        fabricated in said substrate.

1       <sup>16</sup>  
1       ~~17~~ (original) The circuit of Claim <sup>15</sup>~~16~~, wherein said substrate is made from a material  
2       selected from the group consisting of: a III-V material, a II-VI material and a heterostructure  
3       material.

1       <sup>17</sup>  
1       ~~18~~ (original) The circuit of Claim 1, wherein said group delay equalizer circuit is  
2       further capable of allowing a near constant gain response to be achieved over the frequency  
3       range of said amplifier circuit.

1           <sup>18</sup>  
2       ~~19~~ (currently amended) A method for providing a near constant group delay over a  
frequency range of a amplifier circuit, comprising the steps of:

3                 providing said amplifier circuit within a monolithic microwave integrated circuit,  
4        said amplifier circuit having a group delay response variation verses frequency characteristic;  
5        and

6                 integrating a group delay equalizer circuit with said amplifier circuit on said  
7        monolithic microwave integrated circuit to compensate for said group delay variation verses  
8        frequency characteristic of said amplifier circuit to frequencies above 50 GHz.

1           <sup>19</sup>  
2       ~~20~~ (original) The method of Claim ~~19~~, further comprising the steps of:

3                 receiving an input signal having a frequency range at said amplifier circuit;  
4                 amplifying said input signal to produce an output signal corresponding to said  
amplified input signal; and  
5                 maintaining, by said group delay equalizer circuit, near constant group delay of  
6        frequencies within said frequency range of said input signal to prevent distortion of said output  
7        signal.

1           <sup>20</sup>  
2       ~~21~~ (original) The method of Claim ~~19~~, wherein said group delay equalizer circuit  
comprises between 3 and 20 percent of the area of said monolithic microwave integrated circuit.

1       22. (canceled)

1       <sup>21</sup>~~23~~. (original) The method of Claim <sup>18</sup>~~19~~, wherein said step of integrating further  
2      comprises the step of:

3                 integrating one or more sections of said group delay equalizer circuit with said  
4      amplifier circuit on said monolithic microwave integrated circuit, each of said sections having a  
5      different group delay response.

1       <sup>21</sup>~~24~~. (original) The method of Claim <sup>21</sup>~~23~~, wherein said step of integrating said one or more  
2      sections further comprises the step of:

3                 placing at least one of said one or more sections at the input of said amplifier  
4      circuit.

1       <sup>21</sup>~~25~~. (original) The method of Claim <sup>21</sup>~~23~~, wherein said step of integrating said one or more  
2      sections further comprises the step of:

3                 placing at least one of said one or more sections at the output of said amplifier  
4      circuit.

1       <sup>21</sup>~~26~~. (original) The method of Claim <sup>21</sup>~~23~~, wherein said step of integrating said one or more  
2      sections further comprises the step of:

3                 placing at least one of said one or more sections between one or more stages of  
4      said amplifier circuit.

1       <sup>21</sup>~~27~~. (original) The method of Claim <sup>21</sup>~~23~~, wherein said step of integrating said one or more  
2      sections further comprises the step of:

3                   cascading said one or more sections together to form a composite group delay  
4                   response capable of compensating for said group delay variation verses frequency characteristic  
5                   of said amplifier circuit.

1                   <sup>26</sup> ~~28~~ (original) The method of Claim <sup>18</sup> ~~19~~, wherein said step of integrating further  
2                   comprises the step of:

3                   integrating said group delay equalizer circuit with said amplifier circuit on said  
4                   monolithic microwave integrated circuit to allow a near constant gain response to be achieved  
5                   over the frequency range of said amplifier circuit.

1                   <sup>27</sup> ~~29~~ (new) A monolithic microwave integrated circuit, comprising:  
2                   an amplifier circuit having a group delay variation verses frequency characteristic;  
3                   and

4                   a group delay equalizer circuit integrated with said amplifier circuit to  
5                   compensate for said group delay variation verses frequency characteristic of said amplifier  
6                   circuit, said group delay equalizer circuit comprising a plurality sections, each section having a  
7                   different group delay response, said plurality of sections being cascaded to form an overall  
8                   composite group delay response.

1                   <sup>28</sup> ~~30~~ (new) The monolithic microwave integrated circuit of claim <sup>27</sup> ~~29~~, wherein said  
2                   amplifier circuit has a plurality of stages.

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1       <sup>29</sup>  
~~31~~ (new) The monolithic microwave integrated circuit of claim <sup>28</sup>~~30~~, wherein said  
2       plurality of sections can be separated by said plurality of stages.

1       <sup>30</sup>  
~~32~~ (new)      The monolithic microwave integrated circuit of claim <sup>27</sup>~~29~~, wherein said  
2       group delay equalizer circuit is capable of compensating for said group delay variation verses  
3       frequency characteristic of said amplifier circuit to frequencies above 50 GHz.